

# WETLAND MITIGATION GUIDELINES FOR WATER SUPPLY RESERVOIRS AND PUBLIC FISHING LAKES IN GEORGIA

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## BACKGROUND

The Department of Natural Resources (DNR) has responsibility for both environmental protection and management of the natural resource base in Georgia. In meeting this broad mandate, DNR is responsible for protection, management and frequently the preservation of natural resources. In addition, the Department also has responsibility for management of resources to assure that the needs of a growing population are met through environmental protection, adequate water supplies, hunting, fishing, parks and related outdoor recreational opportunities. Georgia presently ranks fourth among the 50 states in net population growth. The impact of growth during the past ten years has seriously affected all DNR programs; however, two major problem areas--a shortage of water resources in the Piedmont Region of Georgia, and need for additional state-owned lands to meet the demand for public hunting and public fishing lakes--are critical to the state. In response to these needs, Georgia DNR has initiated specific action programs for: (1) identification and construction of water supply reservoirs and; (2) acquisition of land (including wetlands) for wildlife management areas and public fishing lakes.

## ENVIRONMENTAL IMPACT OF LAKE CONSTRUCTION

Although the proposed Public Fishing Area (PFA) and Water Supply Reservoir programs will impact wetlands, impacts will vary. In some instances, water supply reservoirs will be located "off stream" with pumpage during periods of high flows; and, in some instances, pumpage will be utilized on selected "on stream" projects to increase yield. Water Supply Reservoirs will require restrictive watershed and lake side ordinances to protect water quality, including setbacks and regulation of development within the watershed, and recreational use may be restricted to assure water quality protection. Water Supply Reservoirs will have fluctuating levels dependent on rainfall, and boating use on some reservoirs may be restricted to electric motors or sailboats, etc. Sizes of water supply impoundments will vary; however, to avoid a profusion of smaller lakes, DNR will require sizing of local reservoirs to

meet projected needs to at least 2020 or beyond. Regional reservoirs will be designed to serve beyond 2020 needs, will provide yields generally greater than 20 mgd of reliable water supply, and will accommodate a service area of several counties. Water supply reservoirs will not only meet drinking water needs, but will also help to protect critical low stream flows. Local governments will be able to stop withdrawal of water from streams during drought periods, and instead use water stored in reservoirs. This will lessen the impact of drought on streams in Georgia.

Public fishing lakes will be managed for increased fish production through fertilization programs and selected fish stocking; and constructed on watersheds that will assure success of a fertilization program. Public fishing lakes will vary from 100-500 acres in size dependent upon the watershed selected. In most instances, a portion of the watershed will be purchased to protect water quality. All areas will be intensely managed for fish production, and boating will be restrictive.

The most important element in wetlands protection is to minimize wetland loss. This will be accomplished in two ways relative to the water supply reservoirs and public fishing lakes program.

First, reservoir projects will be evaluated by DNR and constructed only where needed. For example, water supply reservoirs are not proposed for communities with adequate groundwater or surface water sources. Consequently, no water supply reservoirs are proposed south of the Fall Line. The need for public fishing lakes is selected through a process which involves the population density and availability of public fishing waters within a designated travel area.

Second, sites will be carefully screened for potential wetland impacts along with other environmental and economic analyses. Sites with significant wetlands will be avoided where possible, and in other cases, will be mitigated. However, it is doubtful that any site would have zero impact on wetlands. Therefore, mitigation plans for loss of wetlands will be developed for each site.

## MITIGATION FOR WETLAND LOSS

Mitigation, in the context of regulatory agencies that deal with environmental losses, is broadly

defined as action to include avoiding, minimizing, rectifying, reducing, eliminating, or compensating for adverse environmental effects. Mitigation for wetland losses also includes changing project plans, or selection of alternate sites to reduce or avoid adverse impact, using preferred construction or management practices to reduce on-site and off-site effects, and compensating for unavoidable wetland losses by creating or restoring either on-site or off-site wetlands. (The Conservation Foundation, 1989)

The word "mitigation" is included in Corps of Engineers regulations and comments on Section 404 permits frequently require mitigation for wetland losses; however, acceptable mitigation methods or practices are seldom defined. Mitigation measures are frequently a condition of an issued permit, while in other instances, proposed permits have been challenged or denied due to inadequate mitigation, without explanation as to what may be considered adequate.

Mitigation is generally proposed on-site; however, on a case-by-case basis, it could also include equivalent compensation for losses at off-site locations through additional land purchase or other methods. If off-site mitigation is necessary on a project, alternative actions should be accomplished within the same physiographic regions, and preferably within the affected watershed. Mitigation in other physiographic regions may be acceptable on a site-by-site determination. Most regulatory agencies do not have published policies that document acceptable mitigation methods and/or procedures to compensate project loss of wetland resources. Some of the generally accepted mitigation measures are:

1. **Creation of Wetlands.** This process normally involves a hydrologic modification and precise grading, which results in new wetland areas which will establish aquatic vegetation and hydric soils over time.
2. **Creation of Specific Wetland Habitat.** Construction of low head dams or other structures that result in Green Tree Reservoirs and shallow impoundments. Other practices may include providing food patches and breeding and nursery areas for wildlife.
3. **Enhancement of Degraded Wetlands.** This could be accomplished at the project site if such areas exist, or through acquisition of degraded wetlands elsewhere and restoration to original or improved function and value. Restoration of degraded wetlands could include restoration of hydrologic regimes, planting of preferred vegetation including bottomland hardwoods, improving diversity of wildlife values of existing timber stands or other acceptable wildlife plant management methods.
4. **Purchase of Existing Wetlands.** This may be through plans to protect rare or unique existing wetlands from encroaching development; or purchase of equivalent lands off-site to be set aside in perpetuity for wildlife management areas, recreational use, etc.

Mitigation requirements of regulatory agencies are not always the same, and inconsistencies fre-

quently occur from site to site. The Fish and Wildlife Service, through established methods on habitat evaluation, tends to emphasize mitigation planning that is directed toward restoration of the existing habitat to support resident wildlife species. Habitat Evaluation Plans tend to emphasize the overall value of habitat relative to the abundance of similar habitat. Professional wildlife and fisheries biologists of the Georgia Department of Natural Resources are more concerned that mitigation planning address wildlife populations and species diversity. More emphasis should be directed toward habitat enhancement for wildlife species enjoyed by the public.

Public fishing lakes constructed in wetlands will impact existing wildlife habitat; however, management of public fishing lakes offers an outstanding return in sport fishing success which should be, but is not acknowledged in mitigation plans. Mitigation for wetland losses at public fishing lakes may also be inconsistent with good fisheries management practices. The Environmental Protection Agency tends to emphasize the functional values of wetlands in mitigation plans. Generally, those factors such as protection of water quality, restoration of detrital export and other functional values are emphasized in mitigation for wetland losses. The regulatory agencies are not always consistent nor precise in wetland evaluations, and little guidance is available on mitigation credits for projects in the public interest that have beneficial uses. For example, water supply reservoirs and public fishing lakes perform beneficial functions in water quality, flood control, and sediment trapping, and may also improve low flows during drought conditions.

In some instances, the type of acceptable mitigation is known, but the amount required may vary from site to site due to subjective judgments. A procedure to categorize or classify wetlands with assignment of values at the project site, and comparable procedures and values assigned to mitigate wetland loss, needs to be established within the definition of the U.S. Environmental Protection Agency's policy of "no net loss of wetlands".

## MITIGATION BANKING

The concept of mitigation banking is strongly supported by the Georgia Department of Natural Resources and is generally accepted by regulatory agencies for mitigation of wetland losses. By definition, mitigation banking is a process whereby contributions to satisfy compensation required for wetland losses are "banked" and may be used for purchase of lands, or on other practices to compensate for wetland losses. Mitigation banking can be either on-site or off-site. Under this concept, wetland losses from several projects could be "pooled" for acceptable larger scale mitigation programs. Purchases of degraded wetlands where restoration is possible; or restoration of wetlands on existing state-owned lands where degraded wetlands exist; or creation of wetlands

on state-owned lands, are all examples of the mitigation banking concept.

A wetland protection program presently exists through the DNR Land Acquisition Program, whereby the Game and Fish Division is buying land for wildlife management areas and public fishing lakes. This program is funded through a recently passed increase in hunting and fishing license fees which are "earmarked" to pay off state issued bonds for land acquisition. During 1988, options to purchase over 38,000 acres of wildlife lands were identified. Included in the total is approximately 17,000 acres of wetlands, or 47% of the total. About half of the wetlands purchased under this program fall into the general category of degraded wetlands, and the mitigation banking concept would be applicable.

The benefits accrued from purchase of wetlands, and improvements and enhancement of wetlands on state-owned lands, will be substantial over time with this continuing program. The program also assures a maximum return, since lands are state-owned and will be accessible to all of the citizens of Georgia. The regulatory requirement to meet the concept of "no net loss of wetlands" will be heavily dependent on such a program.

The Department intends to use mitigation banking through the Land Acquisition Program as an important component in the State's overall resource management approach for construction of public fishing lakes, and in the Departmental water supply reservoir program. Legislation proposed for the 1989 Georgia Water Supply Act provides "for . . . . acquisition of real property for mitigation of any alteration of environmental resources by construction of a water reservoir . . . ."

The total program for mitigation banking should also consider those programs addressed in the Conservation Foundation Action Agenda for Protecting Wetlands and the Proposed Wetland Policy of the National Governors Association. (Personal Communication) The following activities should be considered in a wetland mitigation plan:

1. Development of programs involving the propagation, stocking and/or transplanting of rare and endangered plant or animal species.
2. Enhanced development for recreational use such as nature trails, photography of wildlife, etc.
3. Research and monitoring of practices that are in use for creation of wetlands and research on new methods for creation of wetlands, especially the important bottomland hardwood species.
4. Public information programs.

#### SUMMARY

The most effective mitigation programs will always be to minimize and avoid development in wetlands, when possible, and the establishment of land use plans that identify and protect wetlands. If these policies and practices are implemented, significantly larger areas of wetlands will be preserved. For projects with unavoidable wetland

loss, mitigation procedures adequate to offset losses and achieve equilibrium between losses and overall gains of wetlands should be implemented on a state-wide basis. Mitigation banking to compensate for wetland losses will be used by the Georgia Department of Natural Resources.

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#### LITERATURE CITED

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